R E P O R T  R E S U M E S

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QUANTITATIVE STUDY--AIRCRAFT INDUSTRY EMPLOYMENT NEEDS IN UTAH, COLORADO AND NEVADA. FINAL REPORT.

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REPORT NUMBER BR-6-3046 PUB DATE APR 68
GRANT OEG-4-7-063046-1612
EDRS PRICE MF-$0.25 HC-$0.92 21P.

DESCRIPTORS- *EMPLOYMENT PROJECTIONS, *OCCUPATIONAL SURVEYS, *AEROSPACE INDUSTRY, *MANPOWER NEEDS, JOB MARKET, AVIATION MECHANICS, AIRPLANE PILOTS, UTAH, COLORADO, NEVADA,

TO PROVIDE THE UTAH STATE BOARD OF EDUCATION WITH A BASIS FOR FUTURE DECISIONS REGARDING THE ESTABLISHMENT OF TRAINING PROGRAMS FOR AIRCRAFT PILOTS, AIRFRAME AND POWER PLANT MECHANICS, AND ELECTRONIC, RADIO, AND RADAR TECHNICIANS, A THREE-STATE EMPLOYMENT PROJECTION WAS MADE FOR THESE OCCUPATIONS. QUESTIONNAIRES WERE MAILED TO ADMINISTRATORS IN CHARGE OF PERSONNEL OF ALL 104 COMMERCIALLY OPERATED AILINE COMPANIES IN THE THREE-STATE AREA, AND 39 (37.5 PERCENT) WERE RETURNED, SOME NOT FULLY COMPLETED. THE SURVEY RESPONSES WERE CORROBORATED WITH THE FINDINGS OF OTHER STUDIES MADE IN THE FIELD. BECAUSE THE AIRLINE INDUSTRY IS A NATIONAL INDUSTRY, AN ASSESSMENT OF ITS NEEDS IN THE LIMITED GEOGRAPHICAL AREA WAS DEEMED DIFFICULT, ESPECIALLY FOR THE MAJOR AIRLINES. IT WAS FOUND THAT THE NEED FOR PILOTS, BOTH NATIONALLY AND IN THE AREA, WAS BEING ADEQUATELY MET. FOR MECHANICS AND TECHNICIANS, A NATIONAL NEED WAS ASCERTAINED, BUT NOT AN AREA NEED. EVEN FOR THE SMALLER INTRASTATE AIRLINES, THE CURRENT SOURCES OF MANPOWER SUPPLY WERE DEEMED NEARLY ADEQUATE. IT WAS RECOMMENDED THAT NO ADDITIONAL TRAINING PROGRAMS BE INSTITUTED IN THE STATE FOR ANY OF THE OCCUPATIONAL AREAS DISCUSSED. (ET)

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FINAL REPORT

Project No. 603046
Grant No. OEG-4-7-063046-1612

# QUANTITATIVE STUDY - AIRCRAFT INDUSTRY EMPLOYMENT NEEDS IN UTAH, COLORADO AND NEVADA.

April 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

VT005763

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FINAL REPORT

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# "QUANTITATIVE STUDY - AIRCRAFT INDUSTRY EMPLOYMENT NEEDS IN UTAH, COLORADO AND NEVADA."

Principal Investigator: Robert W. Pommerville
Project Director: John F. Stephens

Utah Research Coordinating Unit
for Vocational and Technical Education
Utah State Board of Education
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The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

## SUMMARY

The present and future manpower requirements of the air transportation industry in Utah, Colorado and Nevada is not now available in a comprehensive form. In order to accurately assess the need for training programs for pilots, mechanics and technicians, such an employment projection is necessary.

The basic purpose of the study was to provide the Utah State Board of Education with a basis for future decisions regarding the establishment of training programs for aircraft pilots, mechanics and technicians.

Because of the national, and even international, nature of the job market in the relevant occupational fields, and because of the limited opportunity for employment in those fields within the three-state area of Utah, Colorado and Nevada, the study concludes that there is no need for the institution of training programs, by the state of Utah, for pilots, mechanics or technicians.

# I. INTRODUCTION

## A. Problem Statement

The present and future manpower requirements of the air transportation industry in Utah, Colorado and Nevada is not now available in a comprehensive form. In order to accurately assess the need for training programs for pilots, mechanics and technicians, such an employment projection is necessary.

## B. Objectives of the Study

The basic purpose of this study is to provide the Utah State Board of Education with a basis for future decisions regarding the establishment of training programs for aircraft pilots, mechanics and technicians.

The specific objectives of this study are:

1. To ascertain the present and future need of the industry for aircraft pilots (in Utah, Colorado, and Nevada);

2. To ascertain the present and future need of the industry for airframe and power plant mechanics (again in the three state area); and

3. To ascertain the present and future need of the three-state aviation industry for electronic, radio and radar technicians.

## C. Limiting Factors

The findings resulting from this study were limited in several ways. These limitations include the following factors:

1. The major airlines had difficulty in categorizing their figures and projections to include only the three-state area of Utah, Nevada, and Colorado.

2. Many of the questionnaires sent to operating airlines were not returned, although most of the major airlines complied with our requests.

3. The information obtained from the airlines, in many cases, was not as detailed and explicit as had been desired.

4. Because of the national character of the employment market in each of these professional fields, it was difficult for the study to be meaningfully limited to the small geographical area with which it was meant to be concerned.

D. Delimitations

In addition to the limiting factors listed above, there were certain delimitations placed on the project which the Utah State Board of Education felt were necessary to give more definition to the study.

1. The area of the study was limited to commercially operated airlines, thus excluding those aircraft facilities operated by and solely for the benefit of individual companies and persons.

2. The geographical area considered was limited to the three-state area of Utah, Nevada and Colorado.

3. The study was restricted to inquiries at the company level and those made of state and federal administrative personnel. No attempt was made to elicit information from individual pilots, mechanics or technicians.

4. The study was limited mainly to a quantitative survey, and the conclusions reached herein result from such findings.

## II. DESCRIPTION OF THE RESEARCH DESIGN

A. Design Format

In order to accomplish the purpose of this study, it was necessary to seek information from the following sources:

1. Survey of operating airlines - to determine the needs, policies, and procedures of those companies affecting the three-state aviation industry job market.

2. Use of other studies made in the field - to obtain the benefits of the efforts of others in studying the aviation industry, and to corroborate the results obtained from other sources.

B. Population and Sample

The population for this study consisted of all airline companies operating in the three-state area of Utah, Colorado and Nevada.

The sample chosen for receipt of the questionnaire consisted of the administrators in charge of personnel in each of the airlines in the relevant geographical area.

C. Procedures

1. Survey of operating airlines - to determine the needs, policies and procedures of those companies affecting the aviation industry job market in this three-state area. The questionnaire and covering letter sent to each airline attempted to elicit specific responses from the responding administrator. In many cases, such specific information was readily provided, in others the respondent was either unwilling or unable to go into any detail at all. Many of the questions were left entirely or partially unanswered, resulting in the information obtained being significantly incomplete.

It was quite difficult to get the names and addresses of the operating airlines in the three-state area. The FAA had no such listing, and could suggest no one who might have one. The lists were at last obtained by phoning the following offices or officials:

"Bobby" Walker, Director
Utah Division of Aeronautics
Municipal Airport
Box 45 A.M.F.
Salt Lake City, Utah 84101

Ray Wilson, Supervisor
Air Carriers
Colorado Aeronautics Commission
2075 Adams Street
Denver, Colorado; and

Federal Aviation Agency
General Aviation District Office
2601 E. Plumb Lane
Reno, Nevada 89502

Much was learned from the returned questionnaires, and the attitude of those responding concerning employment opportunities in each of the professional areas listed was generally apparent.

The survey was, of course, incomplete due to the limited response and the partially completed nature of some of the returned questionnaires. The most frequently omitted question was that concerning the projections of each company as to the vacancies occurring annually in each of the professional areas employed by the company.

2. Use of other studies - to obtain the benefit of the efforts of others in studying the aviation industry, and to corroborate the results obtained from other sources. To ascertain those reports which would be of maximum benefit to the present study, letters of inquiry were directed to the following individuals and agencies:

Mrs. Lois Flynn, Reference Librarian
Department of Transportation
Federal Aviation Administration
Washington, D. C. 20590

Mr. Robert C. Goodwin, Administrator
Bureau of Employment Security
U.S. Department of Labor
Washington, D.C. 20210

Richard S. Nelson, Chief
Bureau of Industrial Education
California Department of Education
721 Capitol Mall
Sacramento, California 95814

Dr. Everett D. Edington, Coordinator
Research Coordinating Unit
Vocational Education Section
California Department of Education
721 Capitol Mall
Sacramento, California 95814

## III. REVIEW OF LITERATURE

There are two studies which are directly related to the objectives of this survey, and which must be considered prior to any action in this area. Both studies have been placed with Mr. Walter Ulrich, Specialist, Vocational and Technical Education, are available in his files, and are briefly described below:

A. The Job Market for Pilots and Mechanics, Mid-1967, prepared by Robert R. Nathan Associates, Inc., Washington, D.C., August 1967. The report was described in this way by Robert C. Goodwin in a letter to the author dated March 25, 1968:

> "This publication represents the first phase of a comprehensive study of the civil aviation industry now being conducted by the Department of Labor. The completed study will cover the short-term and long-term manpower needs for pilots and mechanics for

civil air carriers and for the various segments of General Aviation such as business flying, air taxi firms, flying schools, crop dusters, etc. The full study is expected to be completed by late 1968".

B. A National Study of the Aviation Mechanics Occupation, David Allen et al., 1966. The report considers only in passing the demand for mechanics in the aviation industry, and devotes most of its emphasis to the content of the training programs and the core curriculum necessary to adequately prepare mechanics for the world of work.

## IV. RESEARCH RESULTS

### A. Major Airlines

It is difficult to assess job needs in the Airline Industry in the limited geographical area with which we are concerned, as we are dealing with a truly national industry. The major airlines do have personnel located in Utah (Salt Lake) and in Colorado (Denver) but these are part of a nationwide pool and get into the geographical area only after obtaining sufficient seniority. For example, in a letter to the author dated March 15, 1968, R.L. Blake, Employment Manager of United Air Lines, stated:

> "We have approximately 400 licensed mechanics in Utah and Colorado of which the great majority are located in Denver. Since our mechanics are union organized, any openings are filled on a seniority bid basis. Due to the desirability of the area, it takes approximately six years of company seniority to get into either Salt Lake City or Denver. New-hire mechanics are placed initially in San Francisco, Chicago, New York area, or Los Angeles.

The same hiring policy was related by Trans World Airlines, Continental Airlines, and Western Airlines. Thus, very little hiring is done in Utah in any of the professional areas of interest with which this study is concerned.

The three occupational classifications of concern in the present study (undertaken at the request of Walter Ulrich, Specialist, Vocational and Technical Education), are PILOTS, MECHANICS (AIRFRAME, POWERPLANT, ETC.) . and AVIONICS TECHNICIANS (RADIO, RADAR,ELECTRONICS). Each of these will be discussed in order.

Pilots: Most of the major airlines report that the supply is more than meeting the demand, with 90-98% of the new hires being ex-military pilots. It is indicated that minimum requirements include a commercial pilots license, although during the pilot shortage of 1962-64 some airlines began "Zero Time Programs" aimed at college graduates with little or no flight time, and these have not yet been wholly discontinued.

The labor market for pilots is national or even international in scope, and any attempt to geographically limit the market would be futile.

The following table is instructive (taken from: The Job Market for Pilots and Mechanics, Mid-1967, supra):

PILOTS

| YEAR | TOTAL EMPLOYMENT | YEAR-TO-YEAR CHANGE |
|---|---|---|
| 1960 | 13,535 | |
| 1961 | 13,936 | 401 |
| 1962 | 13,820 | -116 |
| 1963 | 14,262 | 442 |
| 1964 | 15,136 | 874 |
| 1965 | 16,881 | 1,745 |
| 1966 | 21,019 | 4,138 |

Mechanics: The employment of mechanics is more localized than that of pilots, but because of the transfer policies of the various airlines and the apparent desirability of the intermountain area, few newly-hired mechanics can look forward to working in Utah during the first five or six years of their employment. There is a definite need reported by the airlines for FAA-certificated mechanics, but primary places of employment would not normally be in Utah, Colorado, or Nevada. Most of the manpower requirements of the airlines are supplied by three institutes located in Oklahoma, Pennsylvania and California, and by the military.

This table illustrates the national picture (taken from: The Job Market for Pilots and Mechanics, Mid-1967, supra):

MECHANICS

| YEAR | TOTAL EMPLOYMENT | YEAR-TO-YEAR CHANGE |
|---|---|---|
| 1960 | 34,181 | |
| 1961 | 34,065 | -116 |
| 1962 | 34,925 | 860 |
| 1963 | 34,453 | -472 |
| 1964 | 39,360 | 4,907 |
| 1965 | 41,667 | 2,307 |
| 1966 | 45,327 | 3,660 |

Avionics Technicians: This is a new and developing field in the aircraft industry. Most of the vacancies are at the major centers of the various airlines (i.e., New York, Los Angeles, San Francisco, Chicago, Kansas City) and few are expected to be required in the three-state area. There are no reliable statistics on manpower needs for avionics technicians at the present time, although such will be available at the end of this year in a national study being conducted by the U. S. Department of Labor, Bureau of Employment Security. (The Job Market for Pilots and Mechanics - Mid-1967 was a part of this study.)

B. Intrastate Airlines

The smaller, intrastate airlines in the three-state area have responded to a questionnaire sent out on February 28, 1968. The final compilation of those returns indicates very little employment opportunity now or in the future, in the relevant geographical area, for any of the three job classifications with which we are here concerned. The greatest need would appear to be for mechanics, but even here the total growth in a five-year projection is very small, and present sources of supply would appear nearly adequate.

DO NOT LEND

# V. CONCLUSIONS AND RECOMMENDATIONS

## A. Conclusions

1. The need for pilots by the aviation industry is being adequately met, and little need for pilots is apparent in Utah, Colorado, or Nevada.

2. The need for mechanics in the industry is not being adequately met, but there are few employment opportunities in Utah, Colorado and Nevada, the geographical area to which this study is limited.

3. The need for avionics technicians in the industry is not being met, but again, few of the employment opportunities are to be found in the three-state area.

## B. Recommendations

1. There is no need for an additional training program in the State of Utah for pilots.

2. The establishment of an additional training program for aircraft mechanics is not recommended, despite a need for such mechanics in the industry, since few job opportunities exist in our geographical area.

3. The establishment of an additional training program for avionics technicians is not recommended, despite the growing need for such technicians in the industry, since few job opportunities exist in the relevant geographical area.

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## APPENDIX A

# UTAH STATE BOARD OF EDUCATION

1400 UNIVERSITY CLUB BUILDING • 136 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

Office of the
STATE SUPERINTENDENT
OF PUBLIC INSTRUCTION

T. H. BELL
Superintendent


February 28, 1968

ATTENTION: Personnel Manager

Dear Sir:

The State of Utah is most interested in providing a modern and complete program of instruction in air technology which would provide trained pilots, airframe mechanics, aircraft engine mechanics, and radar and electronic technicians for the air transportation industry. In order to do so, we need a great deal of information concerning the present and future needs of the industry for persons trained in these fields.

The scope of our survey is limited to the quantitative requirements in these fields at the present time and for the ensuing five year period. We are also primarily concerned with the employment requirements in the three-state area of Utah, Colorado and Nevada.

We would appreciate your assistance and cooperation in this matter, and would welcome any observations which you feel are in order. A questionnaire is provided for your convenience as a means of obtaining the information which we desire.

Thank you for your help in this matter.

Sincerely,

Robert W. Pommerville
Research Assistant
Research Coordinating Unit

RWP:rl

Enclosure



WALTER D. TALBOT, Deputy Superintendent for Administration • LERUE WINGET, Deputy Superintendent for Instruction • JAY J. CAMPBELL, Deputy Superintendent for Institutions

# UTAH STATE BOARD OF EDUCATION

1400 UNIVERSITY CLUB BUILDING • 136 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

Office of the
STATE SUPERINTENDENT
OF PUBLIC INSTRUCTION

T. H. BELL
Superintendent


March 12, 1968

ATTENTION: Personnel Manager

Dear Sir:

On February 28, 1968, this office forwarded to you a questionnaire, which made specific inquiries concerning airplane pilots, airframe and aircraft engine mechanics, and radar and electronics technicians. As yet we have not received your reply.

In order for the survey being conducted to be completely successful and for the information obtained to be really accurate, it is essential that your reply be included.

The State Board of Education specialists who will plan the proposed training program have requested that the information from this survey be submitted to them by 18 March. Since that date is rapidly approaching, I would very much appreciate receiving, as soon as possible, any information you can give me.

Thank you for your assistance and cooperation.

Sincerely,

Robert W. Pommerville
Research Assistant
Utah Research Coordinating Unit

RWP:rl



WALTER D. TALBOT, Deputy Superintendent for Administration • LERUE WINGET, Deputy Superintendent for Instruction • JAY J. CAMPBELL, Deputy Superintendent for Institutions

AIR TECHNOLOGY QUESTIONNAIRE

This questionnaire is designed to help the Utah State Superintendent of Public Instruction to adequately plan for the development of state-level training programs for airplane pilots, aircraft engine mechanics, airframe mechanics, and radar and electronic technicians. Please feel free to make whatever comments or suggestions required in addition to those responses specifically solicited.

Thank you for your important contribution to this survey.

1. Company Name _____

2. Company Location _____

3. Person Completing Questionnaire _____

4. Your Position in the Company _____

5. Would your company be willing to assist the State of Utah in implementing any of the above training programs (i.e. establishing curriculum, prerequisites, etc.)

_____ yes _____ no

If yes, in which programs are you most interested? _____

_____

6. From which sources does your company obtain:

a. Pilots _____

b. Airframe Mechanics _____

c. Aircraft Engine Mechanics _____

d. Radar and Electronics Technicians _____

7. In your opinion, the need for a training program in the State of Utah in each of the designated areas can be rated as follows:

| | Substantial Need | Moderate Need | No Need |
|---|---|---|---|
| a. Airplane Pilots | ☐ | ☐ | ☐ |
| b. Airframe Mechanics | ☐ | ☐ | ☐ |
| c. Aircraft Engine Mechanics | ☐ | ☐ | ☐ |
| d. Radar and Electronics Technician | ☐ | ☐ | ☐ |

8. Your company would be willing to consider graduates of the following Utah training programs for employment in their areas of specialty:

| | yes | no | maybe |
|---|---|---|---|
| a. Airplane Pilots | ☐ | ☐ | ☐ |
| b. Airframe Mechanics | ☐ | ☐ | ☐ |
| c. Aircraft Engine Mechanics | ☐ | ☐ | ☐ |
| d. Radar and Electronics Technician | ☐ | ☐ | ☐ |

9. Please indicate the approximate number or estimate as required (considering only the three-state area of Utah, Colorado, and Nevada)

| | Number Presently Employed | Vacancies Occuring Annually / Attrition * | Vacancies Occurring Annually / Growth** |
|---|---|---|---|
| a. Airplane Pilots | ☐ | ☐ | ☐ |
| b. Airframe Mechanics | ☐ | ☐ | ☐ |
| c. Aircraft Engine Mechanics | ☐ | ☐ | ☐ |
| d. Radar and Electronics Technicians | ☐ | ☐ | ☐ |

*Attrition - vacancies created by the death, retirement, change of residence, etc., of those already employed; averaged over the next five-year period.

**Growth - vacancies created (or jobs eliminated) due to positive or negative expansion of the work load; averaged over the next five-year period.

10. Number, in order of preference, those qualities most desired by your company in newly hired airplane pilots. If your company will not hire a person with a particular set of qualifications, place an "X" in the applicable box.

| | |
|---|---|
| a. Four-year bachelor's degree and a commercial pilot's license | ☐ |
| b. Four-year bachelor's degree and a private pilot's license | ☐ |
| c. Four-year bachelor's degree and no license | ☐ |
| d. Two-year associate degree and a commercial pilot's license | ☐ |
| e. Two-year associate degree and a private license | ☐ |
| f. Two-year associate degree and no license | ☐ |
| g. Commercial pilot's license and no degree | ☐ |
| h. Private pilot's license and no degree | ☐ |
| i. No license and no degree | ☐ |

Comments: _____

_____

_____

## QUESTIONNAIRE RETURNS

| | UTAH | | COLORADO | | NEVADA | | MAJOR AIRLINES | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| Number Sent | 29 | | 41 | | 26 | | 8 | | 104 | |
| Replies | 20 | | 10 | | 4 | | 6 | | 39 | |
| Percentage Responding | | 69.0% | | 24.4% | | 15.4% | | 75.0% | | 37.5% |
| 5. Assist in implementing: | | | | | | | | | | |
| yes | 17 | 85% | 6 | 60% | 2 | 50% | 2 | 33.3% | 27 | 69.2% |
| no | 3 | 15% | 2 | 20% | 1 | 25% | 1 | 16.7% | 7 | 17.9% |
| Which programs? | | | | | | | | | | |
| pilots | 12 | 60% | 4 | 40% | | | | | 12 | 30.8% |
| a/p mechanic | 10 | 50% | 2 | 20% | 1 | 25% | 2 | 33.3% | 15 | 38.5% |
| avionics technician | 1 | 5% | | | | | 2 | 33.3% | 3 | 7.7% |
| 6. (a) Pilots: military | 1 | 5% | | | | | 4 | 66.7% | 5 | 12.8% |
| schools | 2 | 10% | 1 | 10% | | | | | 3 | 7.7% |
| open market | 5 | 25% | | | 1 | 25% | 1 | 16.7% | 7 | 17.9% |
| train own | 8 | 40% | 5 | 50% | 1 | 25% | | | 14 | 35.9% |
| (b) A/P Mechanic: | | | | | | | | | | |
| open market | 9 | 45% | 3 | 30% | 2 | 50% | 1 | 16.7% | 15 | 38.5% |
| a/p mechanic school | 2 | 10% | 2 | 20% | 1 | 25% | 4 | 66.7% | 9 | 23.1% |
| train own | 5 | 25% | 1 | 10% | | | | | 6 | 15.4% |
| military | 1 | 5% | | | | | 2 | 33.3% | 3 | 7.7% |
| U.S.U. | 1 | 5% | | | | | | | 1 | 2.6% |
| no need | 2 | 10% | 2 | 20% | 1 | 25% | | | 5 | 12.8% |

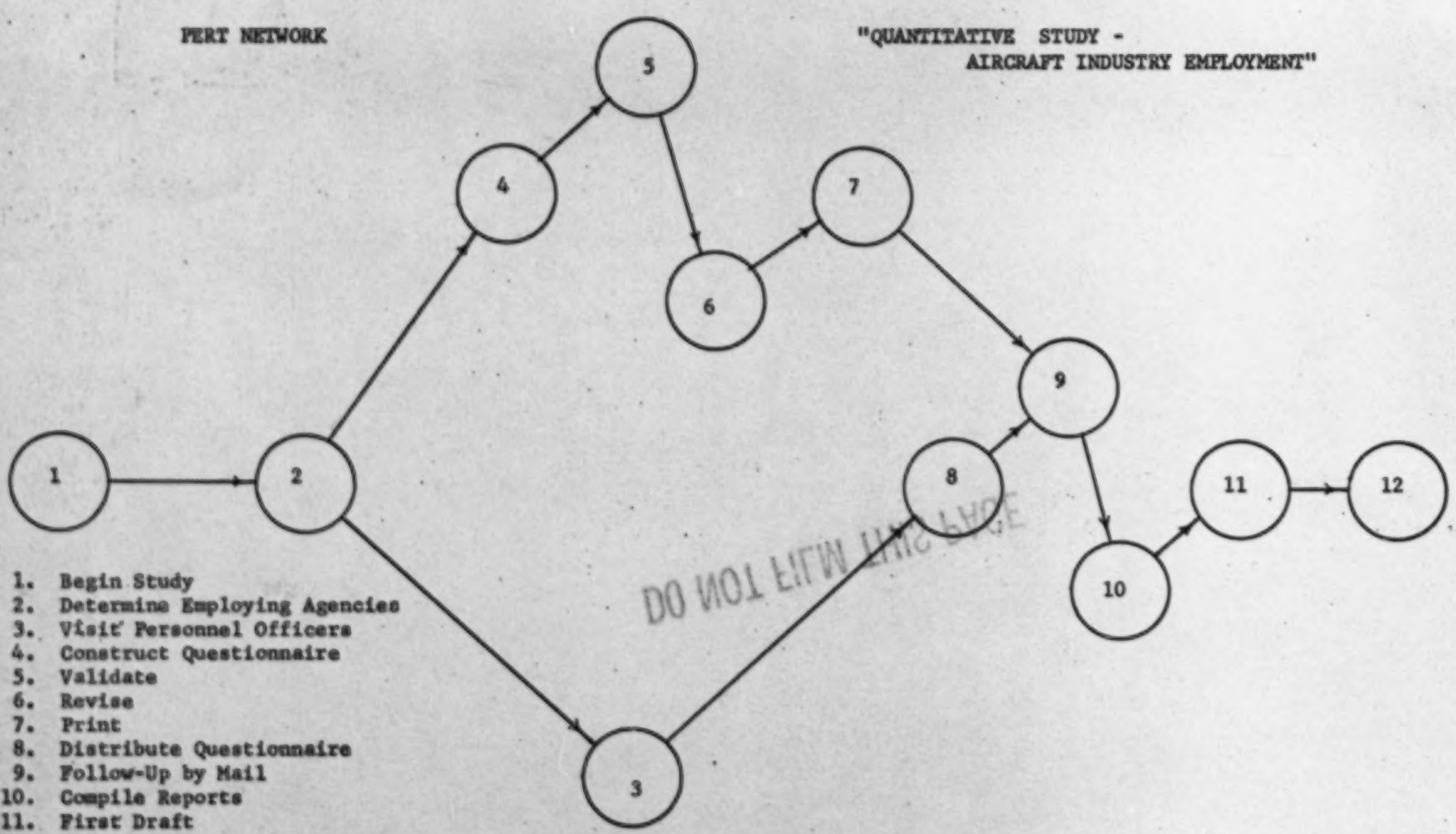
| | | UTAH | COLORADO | NEVADA | MAJOR AIRLINES | TOTAL |
|---|---|---|---|---|---|---|
| (c) Technicians: | | | | | | |
| | open market | 2 10% | | 1 25% | 2 33.3% | 5 12.8% |
| | schools | 1 5% | | | 1 16.7% | 2 5.1% |
| | train own | | | 1 25% | | 1 2.6% |
| | military | | | | 2 33.3% | 2 5.1% |
| | no need | 16 80% | 7 70% | 2 50% | | 25 64.1% |
| 7. Pilots: | substantial need | 2 10% | 1 10% | | | 3 7.7% |
| | moderate need | 14 70% | 2 20% | 2 50% | 1 16.7% | 19 48.7% |
| | no need | 4 20% | 4 40% | | 4 66.7% | 12 30.8% |
| A/P Mechanics: | | | | | | |
| | substantial need | 15 75% | 6 60% | | 2 33.3% | 23 59.0% |
| | moderate need | 5 25% | 1 10% | 2 50% | 2 33.3% | 10 25.6% |
| | no need | | | | 1 16.7% | 1 2.6% |
| Technicians: | | | | | | |
| | substantial need | 12 60% | 1 10% | | 1 16.7% | 14 35.9% |
| | moderate need | 6 30% | 2 20% | | 2 33.3% | 10 25.6% |
| | no need | 2 10% | 3 30% | 2 50% | 1 16.7% | 8 20.5% |
| 8. Would consider: | | | | | | |
| Pilots: | yes | 8 40% | | | 1 16.7% | 9 23.1% |
| | no | 6 30% | 7 70% | 1 25% | 4 66.7% | 18 46.2% |
| | maybe | 6 30% | 1 10% | | | 7 17.9% |
| A/P Mechanic | yes | 14 70% | 5 50% | | 5 83.3% | 24 61.5% |
| | no | 1 5% | 2 20% | 1 25% | | 4 10.3% |
| | maybe | 5 25% | 1 10% | | | 6 15.4% |
| Technicians | yes | 4 20% | 2 20% | | 4 66.7% | 10 25.6% |
| | no | 8 40% | 6 60% | 1 25% | | 15 38.5% |
| | maybe | 8 40% | | | | 8 20.5% |

| | | | TOTAL |
|---|---|---|---|
| 9. | Number: | pilots | 750 |
| | | a/p mechanics | 1013 |
| | | technicians | 53 |
| | Attrition: | pilots | 10 |
| | | a/p mechanics | 27 |
| | | technicians | 0 |
| | Growth: | pilots | 147 |
| | | a/p mechanics | 116 |
| | | technicians | 20 |

| | | UTAH | | COLORADO | | NEVADA | | MAJOR AIRLINES | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | hire | no hire | hire | no hire | hire | no hire | hire | no hire | hire | no hire |
| 10. | Pilot preference | | | | | | | | | | |
| | (a) Bach. degree & comm. license | 9 | 2 | 3 | 2 | | | 5 | | 17 | 4 |
| | (b) Bach. degree & private license | 2 | 4 | | 5 | | | | 4 | 2 | 12 |
| | (c) Bach. degree & no license | 2 | 4 | | 5 | | | | 4 | 2 | 12 |
| | (d) Assoc. degree & comm. license | 12 | 1 | 3 | 2 | | | 3 | 1 | 18 | 3 |
| | (e) Assoc, degree & private license | 2 | 4 | | 5 | | | | 4 | 2 | 12 |
| | (f) Assoc, degree & no license | 1 | 5 | | 5 | | | | 4 | 1 | 13 |
| | (g) Comm. license & no degree | 8 | 3 | 3 | 2 | | | 3 | 1 | 14 | 5 |
| | (h) Private license & no degree | 1 | 6 | | 5 | | | | 4 | 1 | 14 |
| | (i) No license & no degree | | 7 | | 5 | | | | 4 | 0 | 15 |

PERT NETWORK

"QUANTITATIVE STUDY -
AIRCRAFT INDUSTRY EMPLOYMENT"




1. Begin Study
2. Determine Employing Agencies
3. Visit Personnel Officers
4. Construct Questionnaire
5. Validate
6. Revise
7. Print
8. Distribute Questionnaire
9. Follow-Up by Mail
10. Compile Reports
11. First Draft
12. Submit Final Report

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OFFICE OF EDUCATION

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100 TITLE

101 "Quantitative Study - Aircraft Industry Employment Needs in Utah,
102 Colorado and Nevada," Final Report.
103

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300 INSTITUTION (SOURCE) — SOURCE COD

Utah State Board of Education, RCU, 1400 Univ, Club Bldg. SLC

310 REPORT/SERIES NO. None

OTHER SOURCE — SOURCE COD

320 None

330 OTHER REPORT NO. None

OTHER SOURCE — SOURCE COD

340 None

350 OTHER REPORT NO. None

400 PUB'L. DATE 4 – 0 – 68 | CONTRACT/GRANT NUMBER OEG-7-4-063046-1612 RCU Grant
Project No. 6-3046

PAGINATION, ETC.

500 18 pages
501

600 RETRIEVAL TERMS

601 Avionics technicians, airframe mechanics, powerplant mechanics, aircraft
602 pilots, aviation training, vocational training, employment projections,
603 job market, air transportation industry.
604
605
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607 IDENTIFIERS

Federal Aviation Administration, Bureau of Employment Security

800 ABSTRACT


801 The present and future manpower requirements of the air transportation
802 industry in Utah, Colorado and Nevada is not now available in a comprehensive
803 form. In order to accurately assess the need for training programs for pilot
804 mechanics and technicians, such an employment projection is necessary.
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806 The basic purpose of the study was to provide the Utah State Board of
807 Education with a basis for future decisions regarding the establishment of
808 training programs for aircraft pilots, mechanics and technicians.
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810 Because of the national, and even international, nature of the job marke
811 in the relevant occupational fields, and because of the limited opportunity
812 for employment in those fields within the three-state area of Utah, Colorado
813 and Nevada, the study concludes that there is no need for the institution of
814 training programs, by the state of Utah, for pilots, mechanics or technicians

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